

REMARKS

The Office Action mailed October 4, 2010 has been reviewed and carefully considered. No new matter has been added.

Claim 25 has been amended. Claims 1-37 are pending.

Initially, we note that a telephone interview was conducted on December 10, 2010 between the assigned Examiner Mr. James A. Thompson and the Applicants' representatives, namely Mr. Guy Eriksen (Reg. No. 41,736) and Mr. Gaspare J. Randazzo (Reg. No. 41,528). A resultant telephone interview summary dated December 14, 2010 shows that an agreement was reached between the aforementioned parties regarding the following. In particular, the Examiner stated that the "Examiner agreed, based on Applicant's arguments, that Wang does not teach macroblock modes as required by claims 1, 13, and 25. Examiner also agreed to further consider claim 1 with respect to the rejections under 35 U.S.C. 101 and enter Applicant's proposed amendments to claim 25." Hence, the preceding will be referenced hereinafter when responding to the various rejections currently pending against Claims 1-37.

Claims 1-37 stand rejected under 35 U.S.C. 101 as being allegedly directed to non-statutory subject matter. Of Claims 1-37, Claims 1, 13, 25, and 37 are independent Claims. Claims 1 and 37 are directed to respective methods, Claim 13 is directed to a video encoder, and Claim 25 is directed to a digital videodisc.

Regarding method Claims 1 and 37, in *Bilski v. Kappos*, 561 U.S. ____ (2010), the United States Supreme Court stated that the machine-or-transformation text is a "useful and important clue" and "investigative tool" for determining whether some claimed methods are statutory processes. According to the machine or transformation text, a process may be deemed statutory under 35 U.S.C. 101 if the process is (1) tied to another statutory category, or (2) transforms underlying subject matter to a different state or thing.

Accordingly, Claim 1 recites, *inter alia*, "In a video encoder, a video encoding method for selecting the mode of a current macroblock of an inter-coded frame" (emphasis added). Additionally, Claim 37 recites, *inter alia*, "In a video encoder, a video encoding method for selecting the encoding mode of a macroblock of an inter-coded frame" (emphasis added). Accordingly, method Claims 1 and 37 recite that such respective methods are performed in a video

encoder and, hence, are tied to the statutory class of apparatus, thus satisfying the first prong of the machine or transformation test set forth in *Bilski*.

Moreover, regarding Claim 13, the same recites and, hence, is explicitly directed to “A video encoder” (emphasis added).

Thus, regarding Claims 1 and 37, the methods of these claims are described as being explicitly performed in a video encoder and, regarding Claim 13, the same is explicitly directed to a video encoder. As such, we respectfully point out that one of ordinary skill in this and related arts would readily recognize that a video encoder would necessarily involve hardware, essentially a machine having at the least, e.g., a processor(s) or similar processing element(s) and corresponding memory. Any other interpretation lacking at least some hardware would ultimately result in an inoperable device, as there is no getting around the fact that some form of processor and memory are required for any encoder implementation to be operational.

While the Examiner improperly (given the context and entirety of the disclosure in the instant application) focused on, e.g., a RAM, even assuming arguendo that the data stored therein is transitory, a RAM itself is nonetheless a NON-TRANSITORY hardware element and does not operate in a vacuum, but rather is implemented in conjunction with other hardware devices such as a processor and/or processing elements. Getting back to the context of the Applicants’ disclosure which appears to have been missed by the Examiner, the sentence mentioned by the Examiner that discloses a RAM is as follows: “Moreover, explicit use of the term ‘processor’ or ‘controller’ should not be construed to refer exclusively to hardware capable of executing software, and may implicitly include, without limitation, digital signal processor (‘DSP’) hardware, read-only memory (‘ROM’) for storing software, random access memory (‘RAM’), and non-volatile storage”. As is evident from even a very cursory reading of the preceding sentence, hardware is implicated (involved) in ALL of the described scenarios as a processor, controller, DSP, ROM, RAM, and non-volatile storage are all hardware devices.

Also, while the Examiner has mentioned that the specification describes “a wide variety of embodiments of the video encoder”, again as shown above, all necessarily involve hardware. Moreover, while the Examiner has further mentioned that such embodiments are described at page 6, line 12 to page 7, line 9 of the instant application as including manual operations, such description of “manually” explicitly and directly refers to the function of any *switches* that may be

shown in the figures and not to the overall encoder and/or decoder. Again, and most significantly, it is unquestionable to one of ordinary skill in the art that hardware would necessarily be required to implement a video encoder as recited in the pending claims. Moreover, we further point out that an applicant may claim less than that disclosed in the corresponding patent application.

Further regarding Claims 1, 13, and 37, we note that as per MPEP 2111.02(I), “[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation”. Further, we note that page 6, lines 19-21 of the instant application disclose that “[t]he functions of the various elements shown in the figures may be provided through the use of **dedicated hardware as well as hardware** capable of executing software in association with appropriate software” (emphasis added). It is quite evident from simply the preceding sentence alone, that any video encoder embodiment will necessarily involve hardware in all cases, as all cases described in that sentence involve hardware.

Additionally, we note that each of Claims 1, 13, and 37 inherently include an input, namely the current macroblock of an inter-coded frame which is explicitly recited in each of Claims 1, 13, and 37. Moreover, each of Claims 1, 13, and 37 further inherently include an output, namely the “mode” that is selected by each of Claims 1, 13, and 37. That is, the selection itself is an inherent output of the involved methods or apparatus. To that end, we note that Claims 1 and 37 explicitly recite “method for selecting”. Moreover, specifically regarding the video encoder explicitly recited in Claim 13, we note that the same is explicitly recited as being for “encoding video signal data” and, hence, the same is also an output of the video encoder as would be readily understood by one of ordinary skill in the art. Further, given the explicit recitation of a “video encoder” in each of method Claims 1 and 37, the same would apply as well regarding an output there from embodied as encoded video signal data, i.e., a bitstream. As such, the Examiner’s position regarding Claims 1, 13, and 37 lacking inputs and outputs is respectfully believed to be incorrect.

Hence, given the explicit recitation of “video encoder” in Claims 1, 13, and 37 and in consideration of all of the preceding, it is respectfully asserted that Claims 1, 13, and 37 do in fact recite statutory subject matter in satisfaction of 35 U.S.C. 101.

Regarding Claim 25, the same has been amended to now recite, *inter alia*, “A computer readable non-transitory medium for performing a method for selecting a mode of a current macroblock of an inter-coded frame, the method comprising at least one of....” As noted in a memo

(hereinafter also referred to as the “Kappos’ memo”, a copy of which is enclosed herewith for the Examiner’s convenience) dated January 26, 2010 from David J. Kappos, Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office, “[a] claim drawn to such a computer readable medium that covers both transitory and non-transitory embodiments may be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. 101 by adding the limitation ‘non-transitory’ to the claim.” The memo further states that “[s]uch an amendment would typically not raise the issue of new matter, even the specification is silent because the broadest reasonable interpretation relies on the ordinary and customary meaning that includes signals per se.”

Further regarding Claim 25, we note that the currently recited language in the preamble reflects a computer readable non-transitory medium for performing a method for selecting a mode of a current macroblock of an inter-coded frame, where the claim limitations in the body reflect method steps relating to such method. Such type of claim is clearly an article of manufacture and as such, represents statutory subject matter under 35 U.S.C. 101.

Accordingly, Claims 1, 13, 25, and 37 are believed to satisfy the requirements of 35 U.S.C. 101 for at least the preceding reasons. As Claims 2-12, 14-24, and 26-36 directly or indirectly depend from Claims 1, 13, and 25, respectively, Claims 2-12, 14-24, and 26-36 are believed to satisfy the requirements of 35 U.S.C. 101 for at least the reasons set forth above regarding Claims 1, 13, and 25. Thus, reconsideration of the rejection is respectfully requested.

Claims 25-36 stand rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As noted above, Claim 25 has been amended to now recite, *inter alia*, “A computer readable non-transitory medium for performing a method for selecting a mode of a current macroblock of an inter-coded frame, the method comprising at least one of” Accordingly, Claim 25 is clearly directed to a computer readable non-transitory medium, namely an article of manufacture. Moreover, from the currently recited language it is believed to be quite clear that such article of manufacture is intended to store a method, with the preamble of said claim reciting method steps corresponding to such method.

We also note that since the method steps recited in Claim 25 require action, they do not simply represent a collection of data as asserted by the Examiner. Rather, they are functional. To that end, we note the following from MPEP 2106.01:

'[F]unctional descriptive material' consists of data structures and computer programs which impart functionality when employed as a computer component.

...

When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

Thus, in the case of Claim 25, the same includes functional description material that is structurally and functionally interrelated to the medium.

Accordingly, Claim 25 is believed to be clear and definite in particularly pointing out and distinctly claiming the subject matter which applicant regards as the invention. As Claims 26-36 directly or indirectly depend from Claim 25, Claims 26-36 are believed to satisfy the requirements of 35 U.S.C. 112, first paragraph, for at least the reasons set forth above regarding Claim 25. Thus, reconsideration of the rejection is respectfully requested.

In the pending Office Action, Claims 1-4, 7-10, 12-16, 19-22, 24-28, 31-34, 36, and 37 stand rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent Publication No. 2003/0099292 to Wang et al. (hereinafter "Wang"). Claims 5, 17, and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wang in view of U.S. Patent Publication No. 2003/0161402 to Horowitz (hereinafter "Horowitz"). Claims 6, 11, 18, 23, 30, and 35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of U.S. Patent Publication No. 2002/0196854 to Kim (hereinafter "Kim").

The independent claims in the instant application are Claims 1, 13, 25, and 37.

It is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations of Claim 1:

checking first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes;

checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock;

checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes; and

adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met.

Moreover, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations of Claim 13:

first means for checking the first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes;

macroblock means for checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock;

subset means for checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes; and

stopping means for adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met.

Further, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations of Claim 25:

checking first modes for a subset of macroblock modes, selectively checking other modes in response to motion vector information of the checked first modes, and selecting the mode for the current macroblock in response to the checked modes;

checking the macroblock mode of at least one neighboring macroblock, and selecting the mode for the current macroblock in response to the macroblock mode of the at least one checked neighboring macroblock;

checking the cost of a subset of macroblock modes, further checking only intra-coded modes if the checked cost meets a preset criteria, and selecting the mode for the current macroblock in response to the checked modes; and

adjusting an early-stopping threshold in response to checked macroblock modes, and selecting the mode for the current macroblock in response to the checked macroblock modes if the adjusted early-stopping threshold is met.

Also, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations of Claim 37:

selecting a subset of macroblock modes for encoding;
comparing said subset of macroblock modes for coding efficiency; and
selecting a mode having favorable coding efficiency, responsive to said step of comparing modes.

In view of the aforementioned telephone interview and, in particular, the aforementioned resultant telephone interview summary, we gratefully note the Examiner's change of position, namely that "Wang does not teach macroblock modes as required by Claims 1, 13, and 25." In addition, we note that independent Claim 37 includes similar language and, thus, Wang is similarly believed to not teach macroblock modes as required by Claim 37. We further note that our previous arguments as well as our arguments set forth in the telephone interview agenda are applicable here in support of our position regarding Wang, with which the Examiner now agrees. The latter arguments are available on PAIR designated as "LET." regarding the "document code" and "12-06-2010" regarding the "mail room date", as reflected in the bibliographic data.

As Wang is the primary reference, the language in issue is present in all of the currently pending independent claims, and in consideration of the fact that none of the remaining references cure the deficiencies of Wang, it is believed that all claims are now in condition for allowance with respect to 35 U.S.C. 102 and 35 U.S.C. 103.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131, citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." See *In re Wada and Murphy*, Appeal 2007-3733, citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is

nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

Accordingly, Claims 1, 13, 25, and 37 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above.

Claims 2-12 directly or indirectly depend from Claim 1 and, thus, includes all the elements of Claim 1. Claims 14-24 directly or indirectly depend from Claim 13 and, thus, includes all the elements of Claim 13. Claims 26-36 directly or indirectly depend from Claim 25 and, thus, includes all the elements of Claim 10. Accordingly, Claims 2-12 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 1, Claims 14-24 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 13, and Claims 26-36 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above with respect to Claim 25.

Thus, reconsideration of the rejections is respectfully requested.

In view of the foregoing, Applicants respectfully request that the rejection of the claims set forth in the Office Action of October 4, 2010 be withdrawn, that pending claims 1-37 be allowed, and that the case proceed to early issuance of Letters Patent in due course.

No fee is believed due with regard to the filing of this amendment. However, if a fee is due, please charge Deposit Account No. 07-0832.

Respectfully submitted,
Peng Yin

By: **/Guy H. Eriksen/**
Guy Eriksen
Attorney for Applicants
Registration No.: 41,736

Patent Operations
Thomson Licensing LLC
P.O. Box 5312
Princeton, NJ 08543-5312

Date: December 17, 2010

Subject Matter Eligibility of Computer Readable Media

The United States Patent and Trademark Office (USPTO) is obliged to give claims their broadest reasonable interpretation consistent with the specification during proceedings before the USPTO. *See In re Zletz*, 893 F.2d 319 (Fed. Cir. 1989) (during patent examination the pending claims must be interpreted as broadly as their terms reasonably allow). The broadest reasonable interpretation of a claim drawn to a computer readable medium (also called machine readable medium and other such variations) typically covers forms of non-transitory tangible media and transitory propagating signals *per se* in view of the ordinary and customary meaning of computer readable media, particularly when the specification is silent. *See* MPEP 2111.01. When the broadest reasonable interpretation of a claim covers a signal *per se*, the claim must be rejected under 35 U.S.C. § 101 as covering non-statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007) (transitory embodiments are not directed to statutory subject matter) and *Interim Examination Instructions for Evaluating Subject Matter Eligibility Under 35 U.S.C. § 101*, Aug. 24, 2009; p. 2.

The USPTO recognizes that applicants may have claims directed to computer readable media that cover signals *per se*, which the USPTO must reject under 35 U.S.C. § 101 as covering both non-statutory subject matter and statutory subject matter. In an effort to assist the patent community in overcoming a rejection or potential rejection under 35 U.S.C. § 101 in this situation, the USPTO suggests the following approach. A claim drawn to such a computer readable medium that covers both transitory and non-transitory embodiments may be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. § 101 by adding the limitation “non-transitory” to the claim. *Cf. Animals – Patentability*, 1077 Off. Gaz. Pat. Office 24 (April 21, 1987) (suggesting that applicants add the limitation “non-human” to a claim covering a multi-cellular organism to avoid a rejection under 35 U.S.C. § 101). Such an amendment would typically not raise the issue of new matter, even when the specification is silent because the broadest reasonable interpretation relies on the ordinary and customary meaning that includes signals *per se*. The limited situations in which such an amendment could raise issues of new matter occur, for example, when the specification does not support a non-transitory embodiment because a signal *per se* is the only viable embodiment such that the amended claim is impermissibly broadened beyond the supporting disclosure. *See, e.g., Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998).

Date: 1/24/10



David J. Kappos

Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office